

IN THE CLAIMS

Please amend the claims as follows:

Claims 1– 114 (Cancelled)

Claim 115 (Previously Presented) A semiconductor structure comprising:

- a) a monocrystalline Group IV substrate;
- b) an amorphous oxide material in contact with the monocrystalline substrate;
- c) a monocrystalline metal oxide layer selected from the group consisting of alkaline earth metal titanates, alkaline earth metal zirconates, alkaline earth metal hafnates, alkaline earth metal tantalates, alkaline earth metal ruthenates, alkaline earth metal niobates, alkaline earth metal vanadates, alkaline earth metal tin-based perovskites, lanthanum aluminate, lanthanum scandium oxide, gadolinium oxide and mixtures thereof contacting the amorphous oxide material;
- d) a metal or metal oxide capping layer in contact with said monocrystalline metal oxide layer;
- e) a compound semiconductor template layer in contact with said capping layer; and
- f) a monocrystalline compound semiconductor layer in contact with said template layer.

Claim 116 (Previously Presented) The semiconductor structure of claim 115, wherein said monocrystalline Group IV substrate is a silicon substrate.

Claim 117 (Previously Presented) The semiconductor structure of claim 116, wherein said monocrystalline silicon substrate is approximately 300 mm in diameter.

Claim 118 (Previously Presented) A semiconductor device structure comprising:

a monocrystalline silicon substrate;
an amorphous oxide material in contact with the monocrystalline silicon substrate;
a monocrystalline metal oxide layer selected from the group consisting of alkaline earth metal titanates, alkaline earth metal zirconates, alkaline earth metal hafnates, alkaline earth metal tantalates, alkaline earth metal ruthenates, alkaline earth metal niobates, alkaline earth metal vanadates, alkaline earth metal tin-based perovskites, lanthanum aluminate, lanthanum scandium oxide, gadolinium oxide and mixtures thereof contacting the amorphous oxide material;

a monocrystalline material layer selected from the group consisting of Group III-V compound semiconductors, mixed III-V compounds, Group II-VI compound semiconductors, mixed II-VI compounds, Group IV-VI compound semiconductors, and mixed IV-VI compounds overlying said monocrystalline metal oxide layer ;

a first semiconductor component, at least a portion of which is formed in said monocrystalline silicon substrate; and

a second semiconductor component, at least a portion of which is formed in said compound semiconductor layer, said second semiconductor component being electrically coupled to said first semiconductor component.

Claim 119 (New) A semiconductor structure comprising:

- a) a monocrystalline Group IV substrate:
- b) an amorphous oxide material in contact with the monocrystalline substrate;
- c) an amorphous metal oxide layer selected from the group consisting of alkaline earth metal titanates, alkaline earth metal zirconates, alkaline earth metal hafnates, alkaline earth metal tantalates, alkaline earth metal ruthenates, alkaline earth metal niobates, alkaline earth metal vanadates, alkaline earth metal tin-based perovskites, lanthanum aluminate, lanthanum scandium oxide, gadolinium oxide and mixtures thereof contacting the amorphous oxide material;

- d) a metal or metal oxide capping layer in contact with said monocrystalline metal oxide layer;
- e) a compound semiconductor template layer in contact with said capping layer; and
- f) a monocrystalline compound semiconductor layer in contact with said template layer.

Claim 120 (New) A semiconductor structure comprising:

- a) a monocrystalline silicon substrate;
- b) an amorphous $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3$ layer formed on the monocrystalline substrate, where $0 \leq x \leq 1$; and
- c) a monocrystalline compound semiconductor layer formed on the $\text{Ba}_x\text{Sr}_{1-x}\text{TiO}_3$ layer.